

COMP 312
Assignment 4
Due at 9:00 am, Tuesday, October 20 , 2009
All problems are of equal value.

Reading

Cormen, Leiserson, Rivest and Stein, Chapters 15 and 25.

Practice

CLRS, 15.2-1...5, 15.3-1, 15.3-2, 15.3-4, 15.4-1...6, 15-1, 15-2, 15-4, 15-6, 25.2-1...9, 25-1, 25-2.

To Be Handed In

1. (a) CLRS, 15.3-3
(b) CLRS, 15.3-5
2. CLRS, 15-3
3. CLRS, 15-7
4. You are given a directed graph (without weights). Give an algorithm for finding, for each pair of nodes in the graph, the number of different paths connecting them. Analyze the runtime of your algorithm.
5. You are given a weighted directed graph with no negative weight cycles. Give an algorithm for finding, for each pair of nodes in the graph, the number of different shortest paths connecting them. Analyze the runtime of your algorithm.